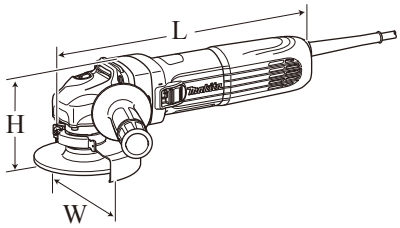
TECHNICAL INFORMATION

PRODUCT

Model No. ► GA4041C/GA4043C, GA4541C/GA4543C, GA5041C/GA5043C

Description ► Angle Grinders 100mm (4"), 115mm (4-1/2"), 125mm (5")



Dimensions: mm (")			
Model No.	**GA4041C GA4043C**	**GA4541C GA4543C**	**GA5041C GA5043C**
Length (L)	325 (12-3/4)		
Width (W)	117 (4-5/8)	130 (5-1/8)	140 (5-1/2)
Height (H)	117 (4-5/8)	121 (4-3/4)	

CONCEPT AND MAIN APPLICATIONS

1,400W Angle grinder series models; GA4041C/ GA4043C, GA4541C/ GA4543C and GA5041C/ GA5043C are successor models of 9560 series models, featuring:

- "Super Joint System II" developed for effective vibration absorption
- Electronic current limiter, speed control and soft start
- Mechanical brake for powerful braking
- Anti-restart function*1
- Re-designed durable gear housing
- Ergonomically best possible barrel grip

*1 Anti-restart function is for models, GA4041C, GA4541C, GA5041C only

► Specification

Voltage (V)	Current (A)	Cycle (Hz)	Continuous Rating (W)		Max. Output (W)
			Input	Output	
110	13	50/60	1,400	840	1,800
120	12	50/60	---	840	2,000
127	12	50/60	1,400	840	2,000
220	6.7	50/60	1,400	840	2,100
230	6.4	50/60	1,400	840	2,100
240	6.1	50/60	1,400	840	2,100

Model No.		**GA4041C/ GA4043C**	**GA4541C/ GA4543C**	**GA5041C/ GA5043C**
Wheel size: mm (")	Diameter	100 (4)	115 (4-1/2)	125 (5)
	Hole diameter	16 (5/8)	22.23 (7/8)	
	Max. thickness	6 (1/4)		
No load speed: min.$^{-1}$=rpm		2,800 - 11,000		
Shock absorbing system		Super Joint System II		
Electronic control	Constant speed control	Yes		
	Soft start	Yes		
	Electronic current limiter	Yes		
	Anti-restart function	GA4041C, GA4541C, GA5041C: Yes/ GA4043C, GA4543C, GA5043C: No		
	Variable speed control by dial	Yes		
Mechanical brake		Yes		
Protection against electric shock		Double insulation		
Power supply cord: m (ft)		European countries except UK: 4.0 (13.2), Brazil, Australia: 2.0 (6.6) Other countries: 2.5 (8.2)		
Weight according to EPTA-Procedure 01/2003*2: kg (")		2.6 (5.6)	2.7 (5.9)	2.7 (5.9)

*2 With Side grip, Wheel cover, Inner flange, Lock nut

► Standard equipment

Side grip 1
Lock nut wrench 1
Depressed center wheel ..... 1 (100mm for GA4041C/ GA4043C, 115mm for GA4541C/ GA4543C, 125mm for GA5041C/ GA5043C)

Note: The standard equipment for the tool shown above may vary by country.

► Optional accessories

Depressed center wheels
Rubber pads
Dust collection wheel guards
Abrasive discs
Wire cup brush sets
Wheel covers for wire cup brush sets
Wire bevel brush sets
Wheel covers for wire bevel brush sets
Diamond wheels
Dust collecting wheel guards
Abrasive cut off wheels
Wheel covers
Sanding lock nut
etc.

Repair

CAUTION: Repair the machine in accordance with "Instruction manual" or "Safety instructions".

[1] NECESSARY REPAIRING TOOLS

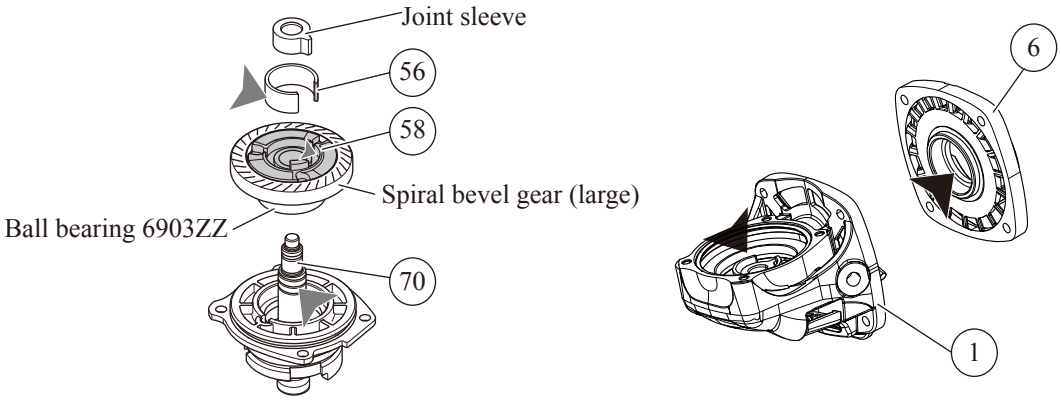
Code No.	Description	Use for
1R028	Bearing setting pipe 20-12.2	mounting Gear housing cover to Armature
1R045	Gear extractor (Large)	separate Armature from Gear housing cover
1R232	Pipe 30	removing Coupling and Ball bearing 6903ZZ from large Spiral bevel gear
1R258	V block	supporting Armature and Bearing box
1R268	Spring pin extractor M3	disassembling Shaft lock mechanism
1R269	Bearing extractor	removing Ball bearings 627DDW/ 696ZZ from Armature
1R281	Round bar for Arbor 7-50	removing Switch knob from Switch lever
1R286	Round bar for Arbor 12-50	removing large Spiral bevel gear section from Bearing box
1R291	Retaining ring S & R pliers	removing Retaining ring S-9
1R340	Bearing retainer wrench	removing Bearing retainer 20-33 from Bearing box
1R350	Ring 60	supporting Gear housing when disassembling Shaft lock mechanism

[2] LUBRICATION

Apply Makita grease to the following portions designated with the black triangle and the gray triangle to protect parts and product from unusual abrasion.

Item No.	Description	Portion to lubricate	Lubricant	Amount
(1)	Gear housing	Gear room	Makita Grease SG No. 0: ▲	17g
(6)	Gear housing cover	O-ring 27.5 of (6) Gear housing cover	Makita Grease SG No. 0: ▲	a little
(56)	C-type plate	Outer surface where (58) Coupling contacts	Makita Grease FA No. 2: ▲	a little
(58)	Coupling	Cylindrical portion where (56) C-type plate contacts	Makita Grease FA No. 2: ▲	a little
(70)	Spindle	Drum portion where (58) Coupling contacts	Makita Grease FA No. 2: ▲	a little

Fig. 1



[3] DISASSEMBLY/ASSEMBLY

[3] -1. Note in Disassemble (general)

Note: As listed below, the grinders use different spiral bevel gears, and they are not interchangeable. Referring to this list, therefore, be sure to use correct gears for replacement.

Model No.	No load speed: min.$^{-1}$	Smaller spiral bevel gear (on armature shaft)	Larger spiral bevel gear (on spindle)
GA4041 GA4541C GA4541 GA5041C GA5041 GA4543C GA4041C GA5043C GA4043C	11,000	**10 teeth**	**38 teeth**
GA6041	9,000	**9 teeth**	**41 teeth**

Repair

[3] DISASSEMBLY/ASSEMBLY
[3] -2. Armature, Spiral bevel gear [small one]

DISASSEMBLING

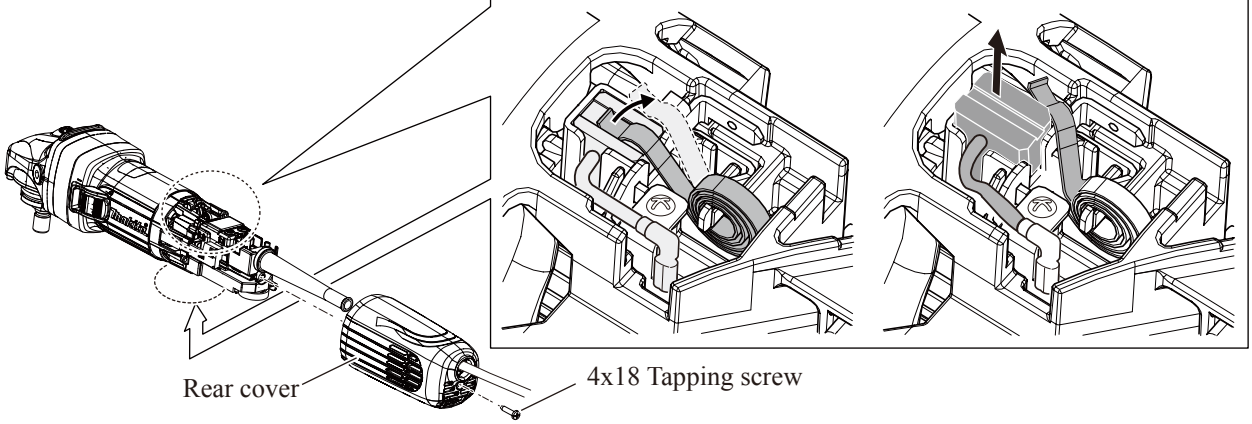
(1) Remove Spiral bevel gear (small) from the drive end of Armature as drawn in **Fig. 2**.

Fig. 2

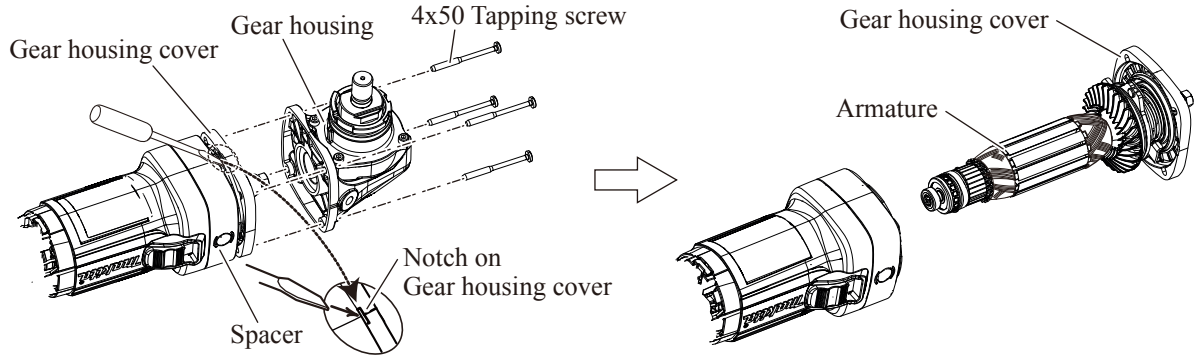
1. Remove Rear cover by unscrewing one 4x18 Tapping screw.

2. Shift Spiral spring from Carbon brush top.

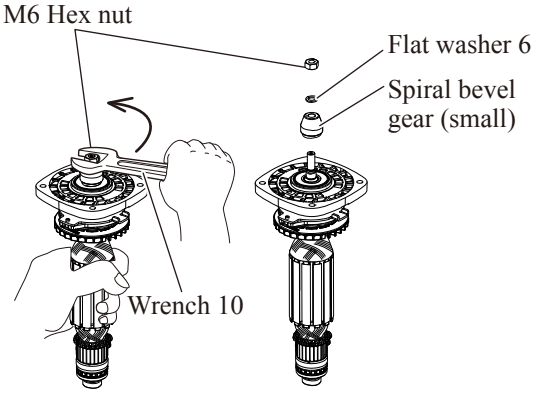
3. Disconnect Carbon brush from commutator by pulling up.
Note: No need to remove Carbon brush in this step.



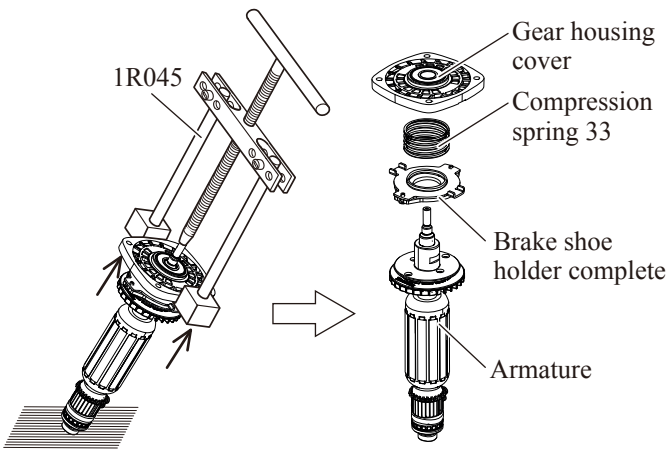
4. Unscrew four Tapping screws. Then separate Gear housing cover from Spacer while applying a slotted screwdriver to the notch on Gear housing cover on belly side.



5. Remove M6 Hex nut to turn it with Wrench 10 counterclockwise. Then, remove Flat washer 6 and small Spiral bevel gear from Armature.



6. Remove Gear housing cover with 1R045. Then, remove Compression spring 33 and Brake shoe holder complete.
Caution: Be careful that the cover and the spring may jump out from Armature side due to recoil force by the spring.



Repair

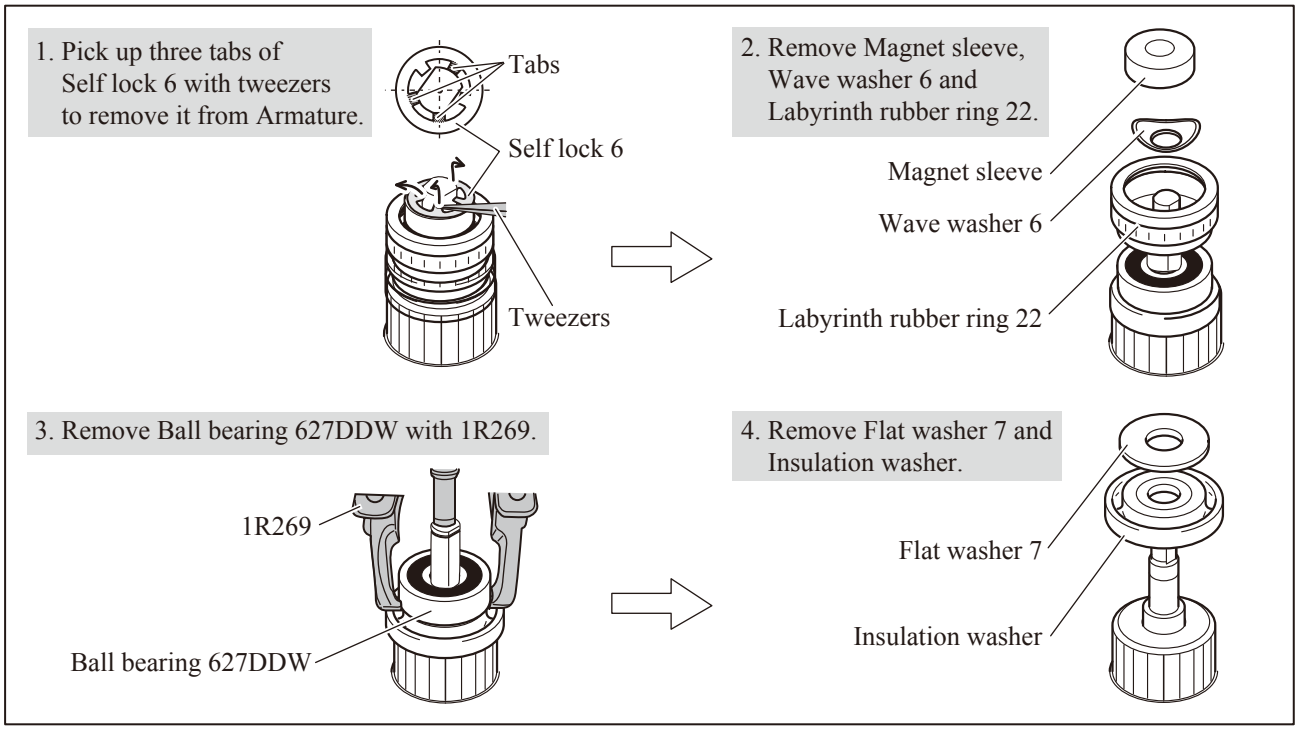
[3] DISASSEMBLY/ASSEMBLY

[3] -2. Armature, Spiral bevel gear [small one] (cont.)

DISASSEMBLING

(2) Disassemble the commutator end of Armature as drawn in **Fig. 3**.
Note: This step is required for the models with electronic control system of **GA4041C, GA4043C, GA4541C, GA4543C, GA5041C, GA5043C**.

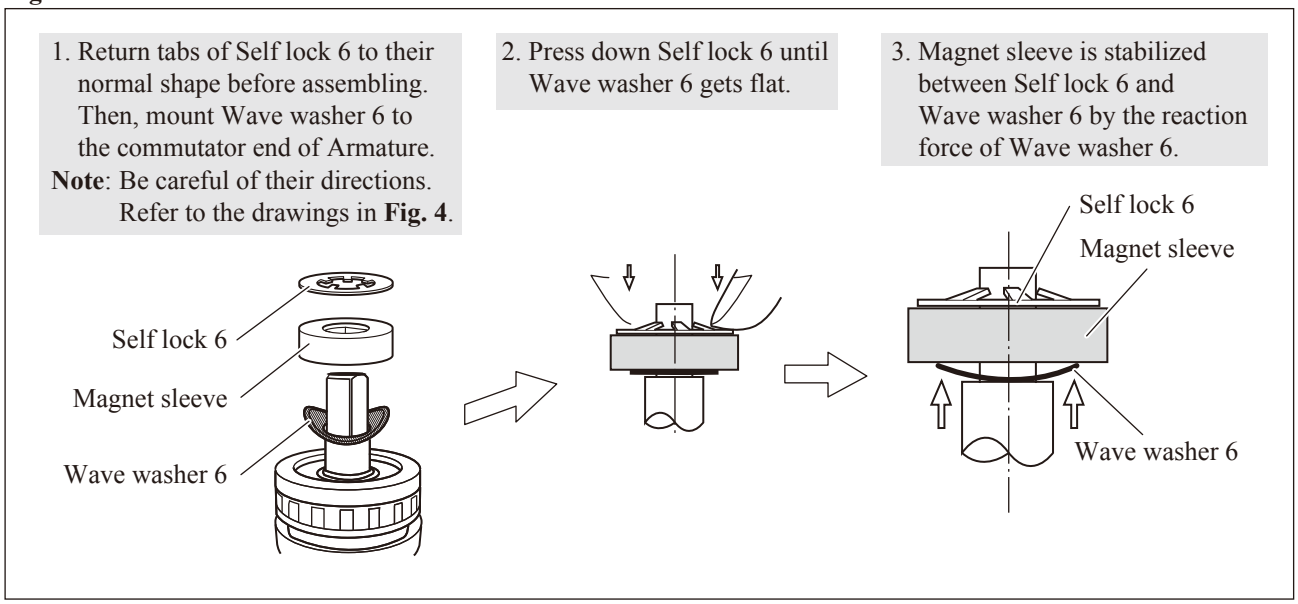
Fig. 3



ASSEMBLING

(1) Assemble the commutator end of Armature as drawn in **Fig. 4**.
Note: This step is required for the models with electronic control system of **GA4041C, GA4043C, GA4541C, GA4543C, GA5041C, GA5043C**.

Fig. 4



► Repair

[3] DISASSEMBLY/ASSEMBLY

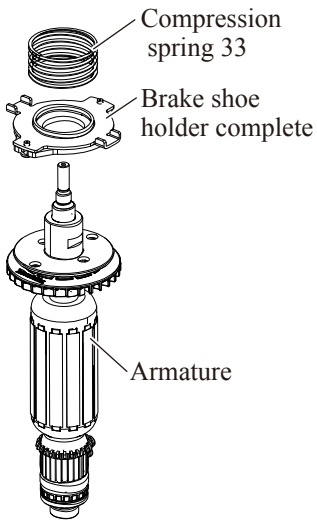
[3] -2. Armature, Spiral bevel gear [small one] (cont.)

ASSEMBLING

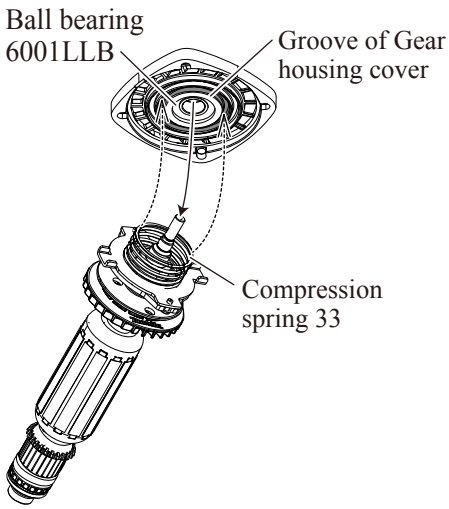
(2) Assemble the drive end of Armature as drawn in **Fig. 5**.

Fig. 5

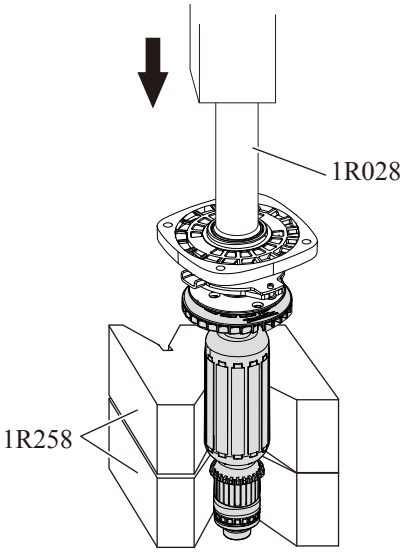
1. Set Brake shoe holder complete and Compression spring 33 to Armature.



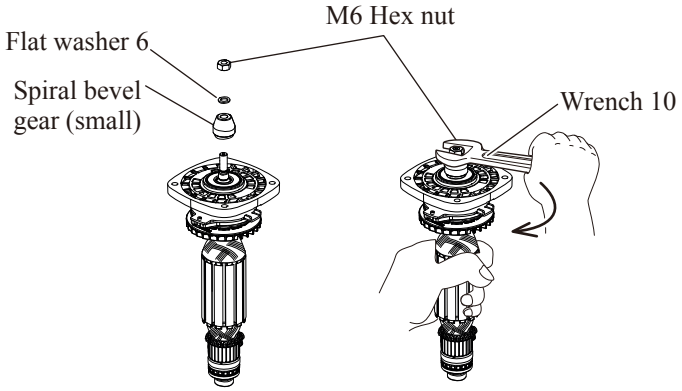
2. Mount Gear housing cover to Armature to fit the groove of the cover to Compression spring 33 and Armature shaft through Ball bearing 6001LLB.



3. Supporting Armature section with 2 pcs. of 1R258, press Gear housing cover to Armature section with 1R028.



4. Set Spiral bevel gear (small) and Flat washer 6 to Armature shaft. Then, secure them with M6 Hex nut.



Repair

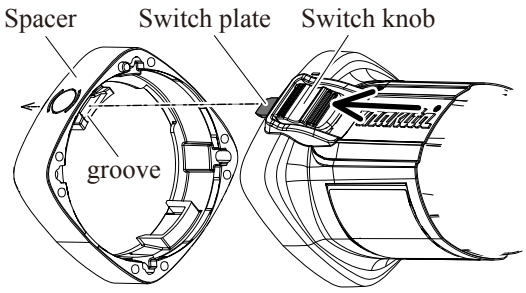
[3] DISASSEMBLY/ASSEMBLY
[3] -2. Armature, Spiral bevel gear [small one] (cont.)

ASSEMBLING

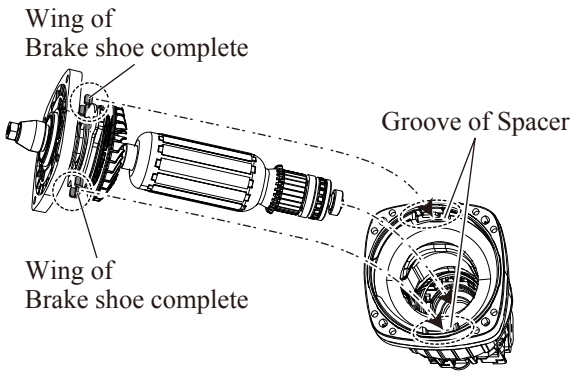
(3) Assemble Spacer, Armature section and Gear housing to Motor housing as drawn in **Fig. 6**.

Fig. 6

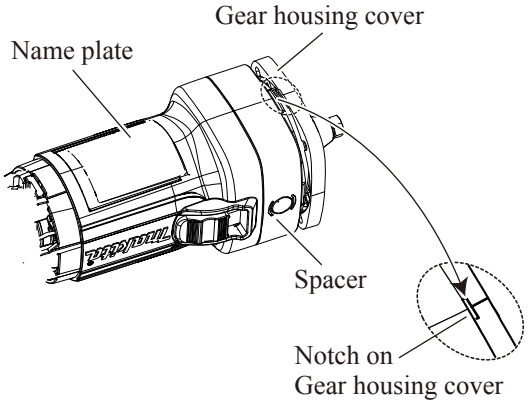
1. Set Switch knob to “Lock ON” position so that Switch plate is pushed toward Spacer. Then, mount Spacer while fitting its groove to Switch plate. And then, return Switch knob to “OFF” position.



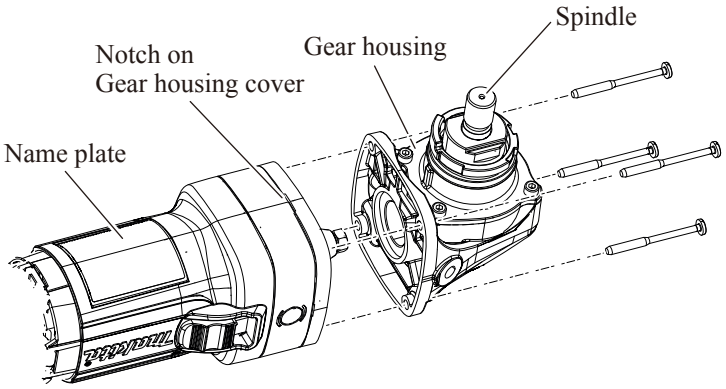
2. Assemble Armature section to Motor housing while fitting the wings of Brake shoe complete to the grooves of Spacer.



3. Face the notch to the same side as Name plate by twisting Gear housing cover.



4. Assemble Gear housing while facing Spindle to the same side as the notch and Name plate.



Repair

[3] DISASSEMBLY/ASSEMBLY

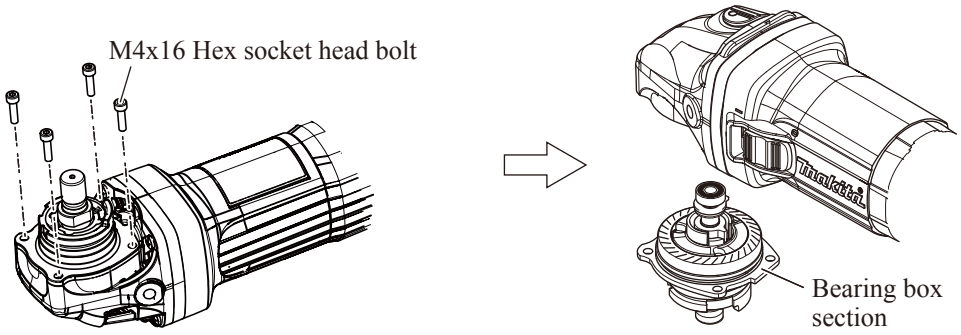
[3] -3. Spiral bevel gear [large one], Ball bearings 696ZZ/ 6201DDW

DISASSEMBLING

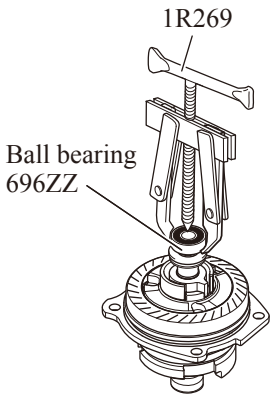
Note: The gear and the ball bearings can be replaced without disassembling the motor section.
(1) Remove Ball bearing 696ZZ, Retaining ring S-9, Flat washer 10 and C-type plate from Spindle as drawn in **Fig. 7**.

Fig. 7

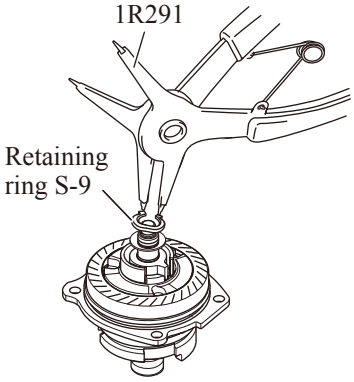
1. Remove four M4x16 Hex socket head bolts, then separate Bearing box section from Gear housing.



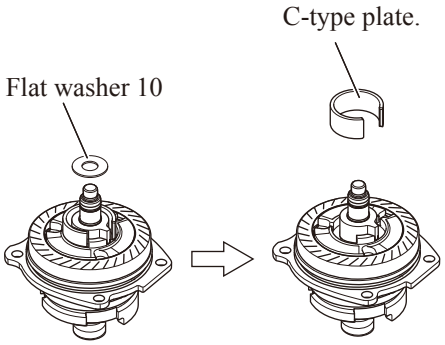
2. Remove Ball bearing 696ZZ with 1R269.



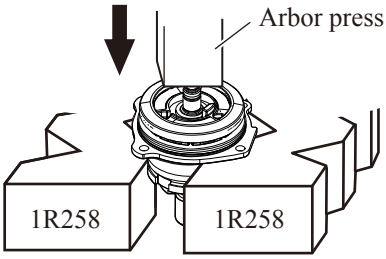
3. Remove Retaining ring S-9 with 1R291.



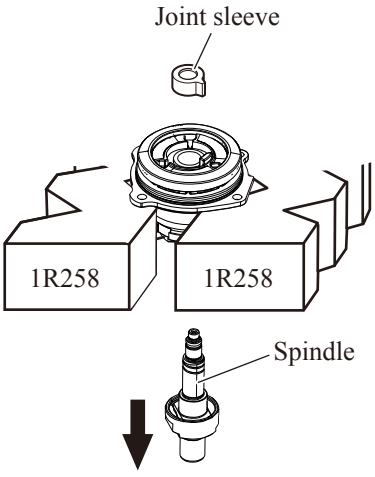
4. Remove Flat washer 10. Then, remove C-type plate.



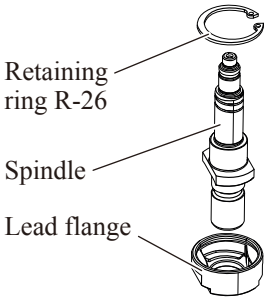
5. Receive Bearing box with 1R258 and remove Spindle by pressing it with Arbor press.



6. Joint sleeve can be removed.



7. Using 1R291, remove Retaining ring R-26 from the inside of Lead flange.
Then, separate Lead flange from Spindle .



Repair

[3] DISASSEMBLY/ASSEMBLY

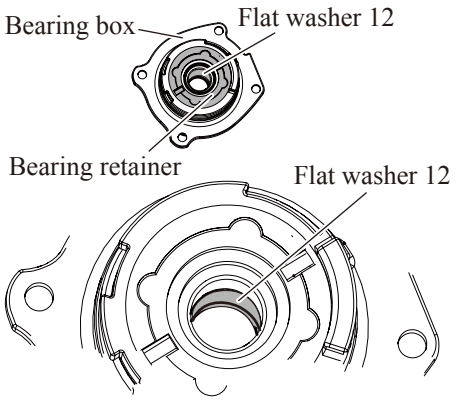
[3] -3. Spiral bevel gear [large one], Ball bearings 696ZZ/ 6201DDW (cont.)

DISASSEMBLING

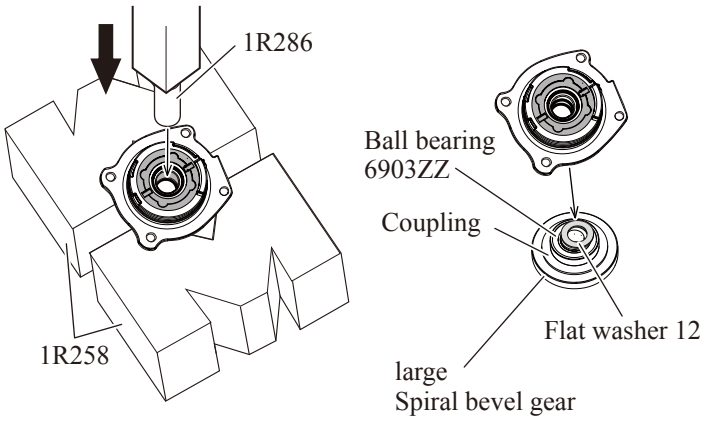
(2) Disassemble large Gear section from Bearing box as drawn in **Fig. 8**.

Fig. 8

1. Tap Bearing box to shift Flat washer 12 so that the surface is revealed as large as possible.
Then, put Bearing box on 1R258.

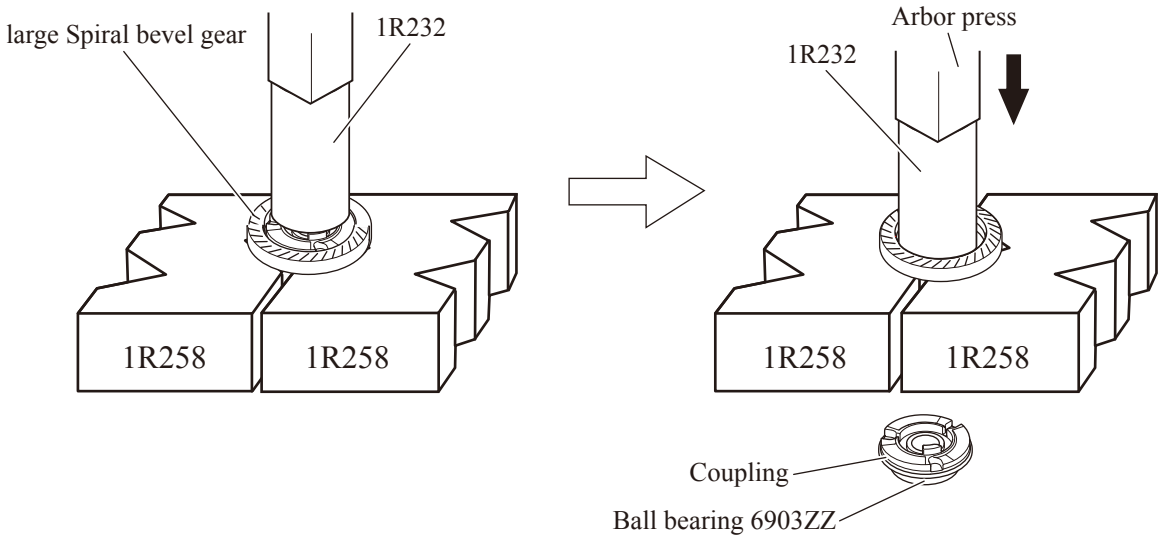


2. While applying 1R286 to Flat washer 12 through Bearing retainer, press it carefully to remove large Spiral bevel gear section (including Coupling and Ball bearing 6903ZZ) from Bearing box.



3. Put large Spiral bevel gear section on 1R258. Then, apply 1R232 to Coupling of the gear section.

4. Remove Coupling together with Ball bearing 6903ZZ from large Spiral bevel gear by pressing 1R232 with Arbor press. And then, disassemble the bearing from Coupling.
Note: Do not re-use the removed Ball bearing 6903ZZ because it is damaged in the step of removing Spindle.



Repair

[3] DISASSEMBLY/ASSEMBLY

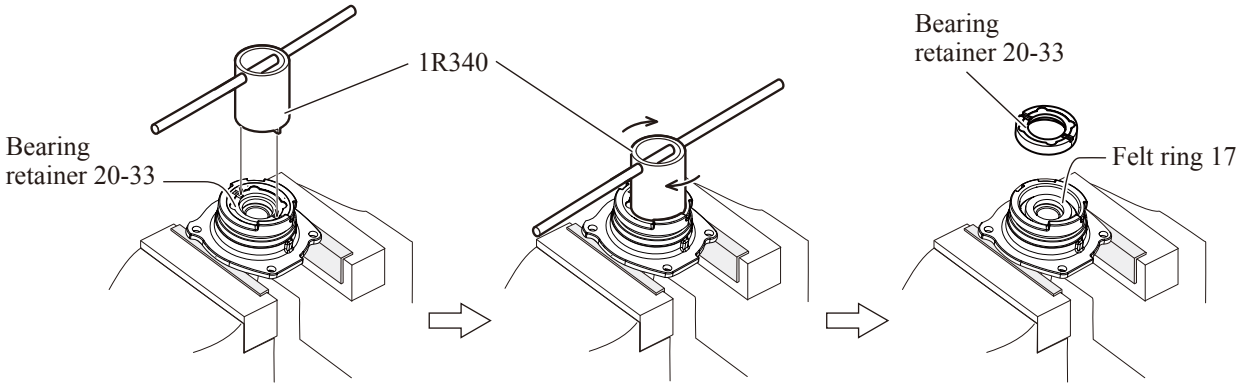
[3] -3. Spiral bevel gear [large one], Ball bearings 696ZZ/ 6201DDW (cont.)

DISASSEMBLING

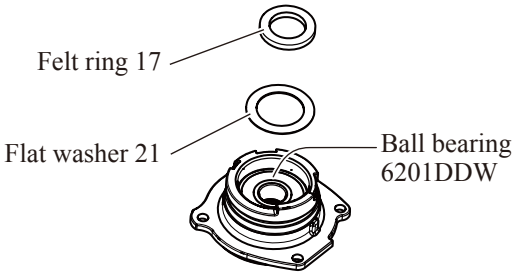
(3) Disassemble Ball bearing 6201DDW from Bearing box as drawn in **Fig. 9**.

Fig. 9

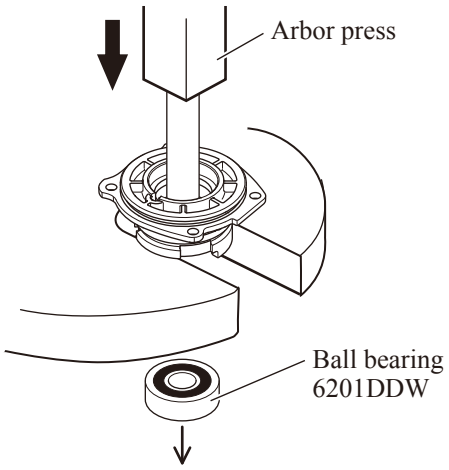
1. Clamp Bearing box with Vise. Then, while fitting the claw of 1R340 to the notch of Bearing retainer 20-33, turn 1R340 clockwise to remove the retainer.



2. Take out Felt ring 17 and Flat washer 21 from Lead flange side of Bearing box.



3. Remove Ball bearing 6201DDW with Arbor press.



ASSEMBLING

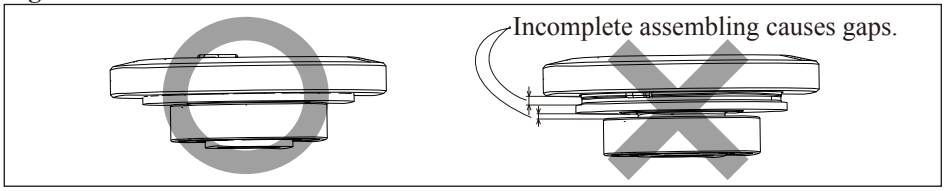
Assemble by reversing the disassembly procedure. (Refer to **Figs. 9**, **8** and **7**)

Note: • Do not re-use the removed Joint sleeve. New Joint sleeve has to be mounted.
(Refer to the **bottom center** illustration in **Fig. 7**)

• Apply the following thread locker to the thread of M4x16 Hex socket head bolts if the unscrewed bolts are used.
*** Three Bond 1342**
*** Loctite 242**
(Refer to the **upper left** illustration in **Fig. 7**)

• Coupling, large Spiral bevel gear, Ball bearing 6903ZZ have to be assembled tightly that there is any gaps among them. See the **left** illustration in **Fig. 10**.

Fig. 10



Repair

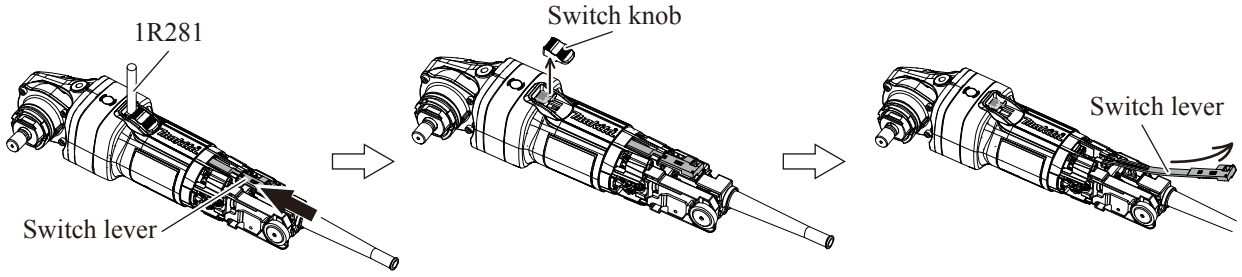
[3] DISASSEMBLY/ASSEMBLY
[3] -4. Switch Lever

DISASSEMBLING

(1) Remove Rear cover from Motor housing by removing 4x18 Tapping screw. (**Fig. 2**)
(2) Disassemble Switch lever and Switch knob from the machine as drawn in **Fig. 11**.

Fig. 11

1. While locking Switch knob with 1R281, strongly push Switch lever in a direction designated with black arrow.
2. Switch lever is disconnected from the locking claw of Switch knob. Then, remove Switch knob.
3. Bending Switch lever, pull out Switch lever from Motor housing.

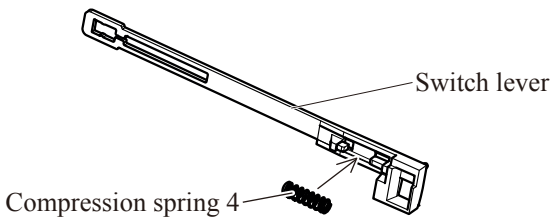


ASSEMBLING

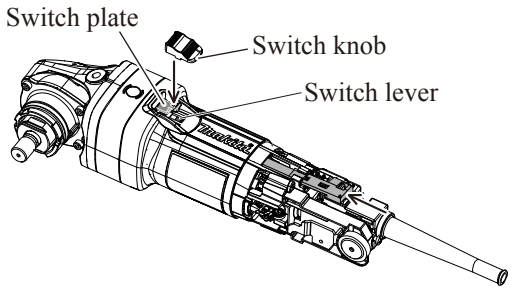
(1) Insert Switch lever into Motor housing. And push it until the loop portion comes into sight through Switch knob assembling hole on Motor housing. Refer to the **right** and **center** illustration in **Fig. 11**.
(2) Assemble Switch knob to Switch lever as drawn in **Fig. 12**.

Fig. 12

1. Make sure that Compression spring 4 is assembled to Switch lever in advance.



2. Fitting Switch knob to the loop portion of Switch lever and the claw portion of Switch plate, hold Switch knob. And then, release Switch lever. (The hook of Switch knob interlocks with the hole of Switch lever when Switch lever is pushed back to OFF position by Compression spring 4.)



Repair

[3] DISASSEMBLY/ASSEMBLY

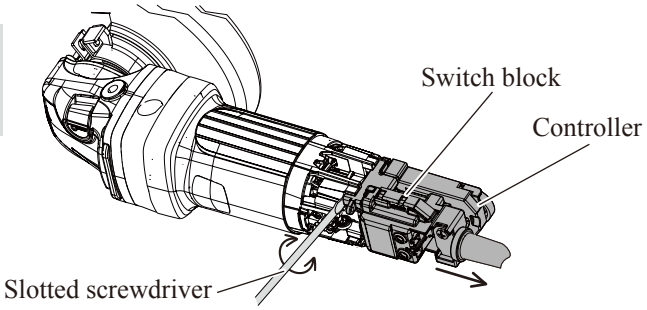
[3] -5. Switch Block

DISASSEMBLING

After removing Switch lever (Refer to **Fig. 11**), separate Switch block from Motor housing as drawn in **Fig. 13**.

Fig. 13

Insert Slotted screwdriver into the gap between Switch block and Motor housing, remove Switch block from Motor housing by twisting the screwdriver.



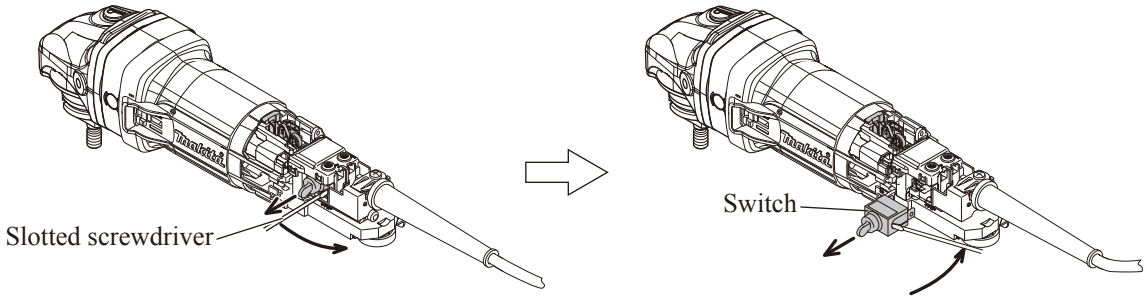
[3] -6. Switch

DISASSEMBLING

After removing Switch lever (Refer to **Fig. 11**), remove Switch from Switch block as drawn in **Fig. 14**.

Fig. 14

Insert Slotted screwdriver into the gap between Switch and Switch block. While fitting the tip of the screwdriver to the side groove of Switch, remove Switch by prying it off.



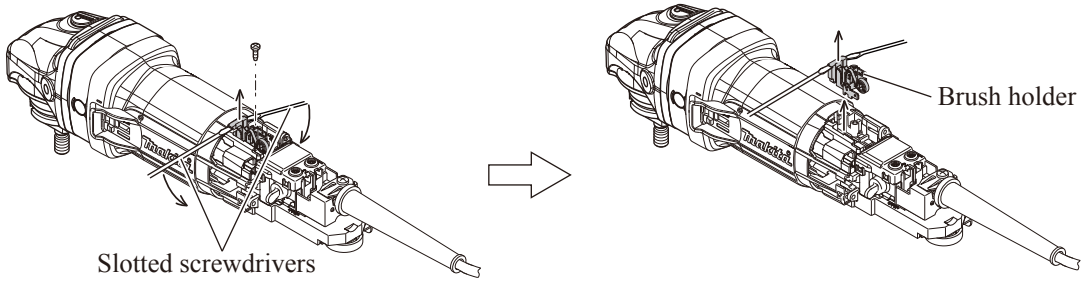
[3] -7. Brush Holder

DISASSEMBLING

Brush holders can be disassembled as drawn in **Fig. 15**.

Fig. 15

Remove 3x10 Tapping screw. Then, insert Slotted screwdrivers into the gap between Motor housing and Brush holder's plastic portion. And then, disassemble Brush holder by prying them off.



Repair

[3] DISASSEMBLY/ASSEMBLY

[3] -8. Shaft Lock

DISASSEMBLING

(1) Disassemble Bearing box section as drawn in the **upper two** illustrations in **Fig. 7**.
(2) Disassemble Shaft lock mechanism as drawn in **Figs. 16** and **17**.

Fig. 16

While applying 1R268 to Shoulder pin 6 through the small hole on Pin cap, tap 1R268 with a hammer.
Now, Shoulder pin 6 comes out from Gear housing complete.

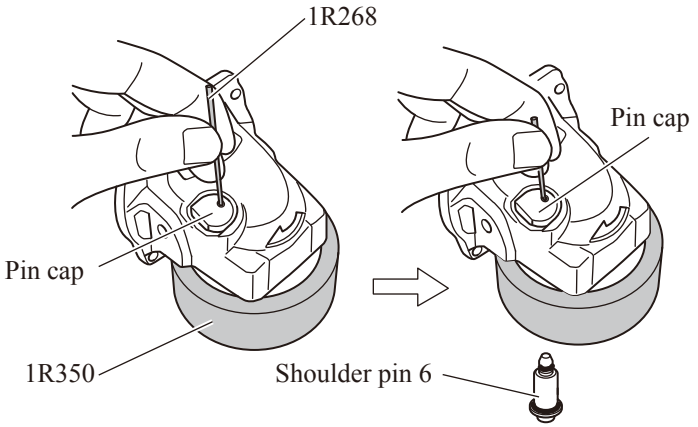
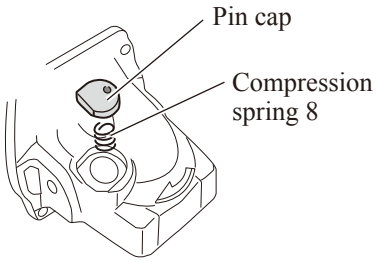


Fig. 17

Release 1R268 from Pin cap carefully so that Pin cap will not pop out by Compression spring 8.



Note: Do not re-use removed Pin cap because removal one damages the inside surface of the cap, producing plastic dust.

ASSEMBLING

(1) Be sure to use a new Pin cap for replacement and to remove all the plastic dust on Shoulder pin 6. (**Fig. 18**)
(2) Assemble the Parts for Shaft lock mechanism as drawn in **Fig. 19**.

Fig. 18

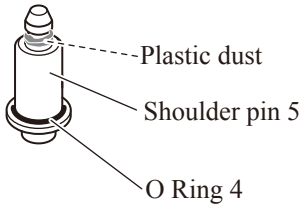
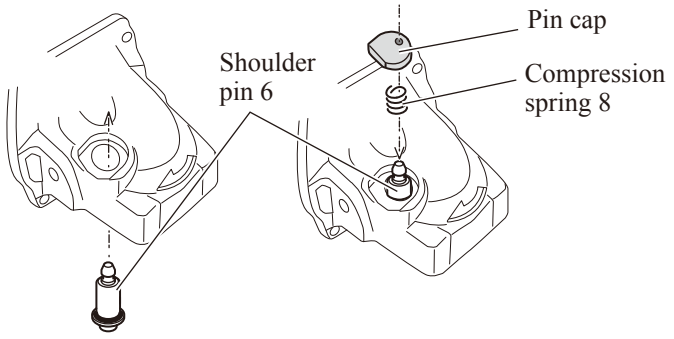


Fig. 19

1. Insert Shoulder pin 6 through the hole of Gear housing complete.

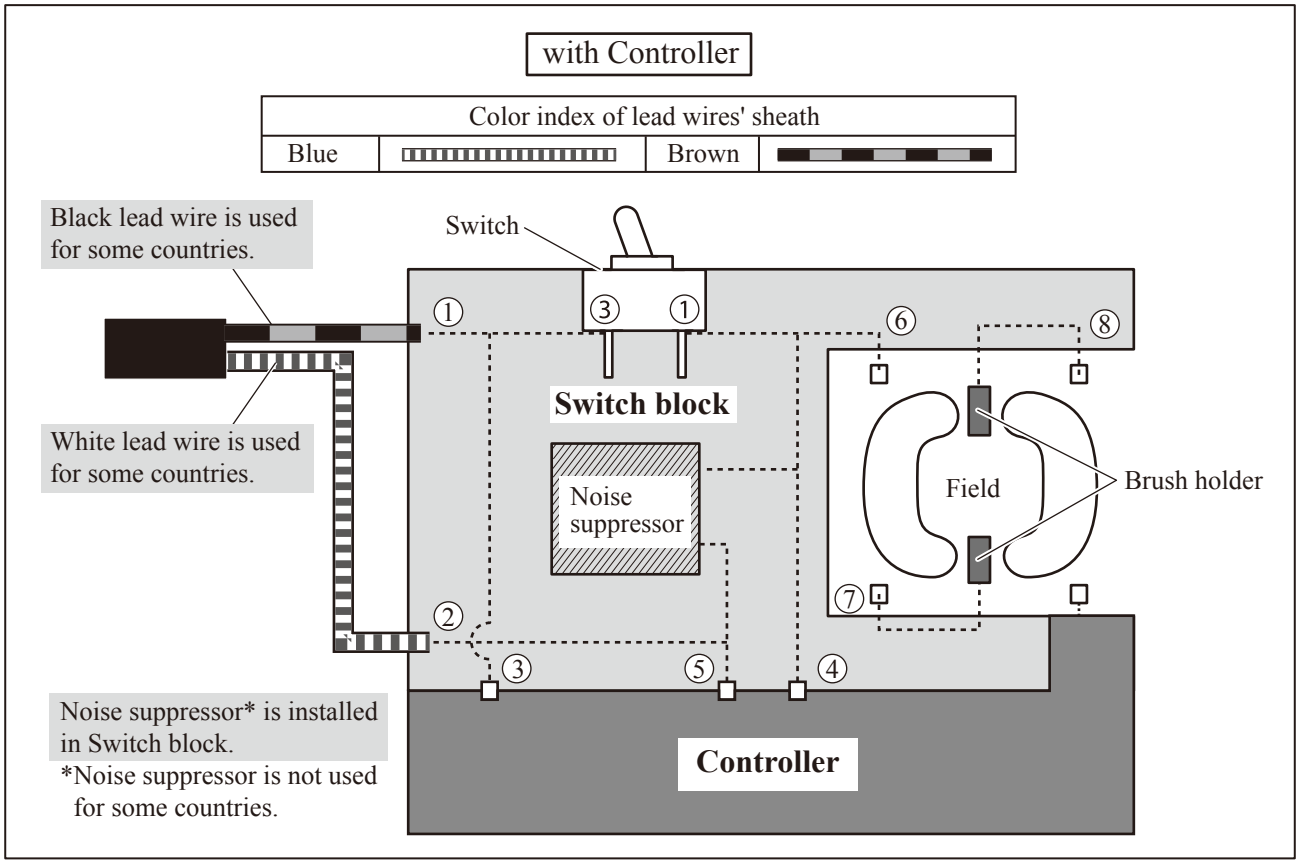
2. Assemble new Pin cap by pressing it to Shoulder pin 6.
Note: Do not forget to assemble Compression spring 8.



Circuit diagram

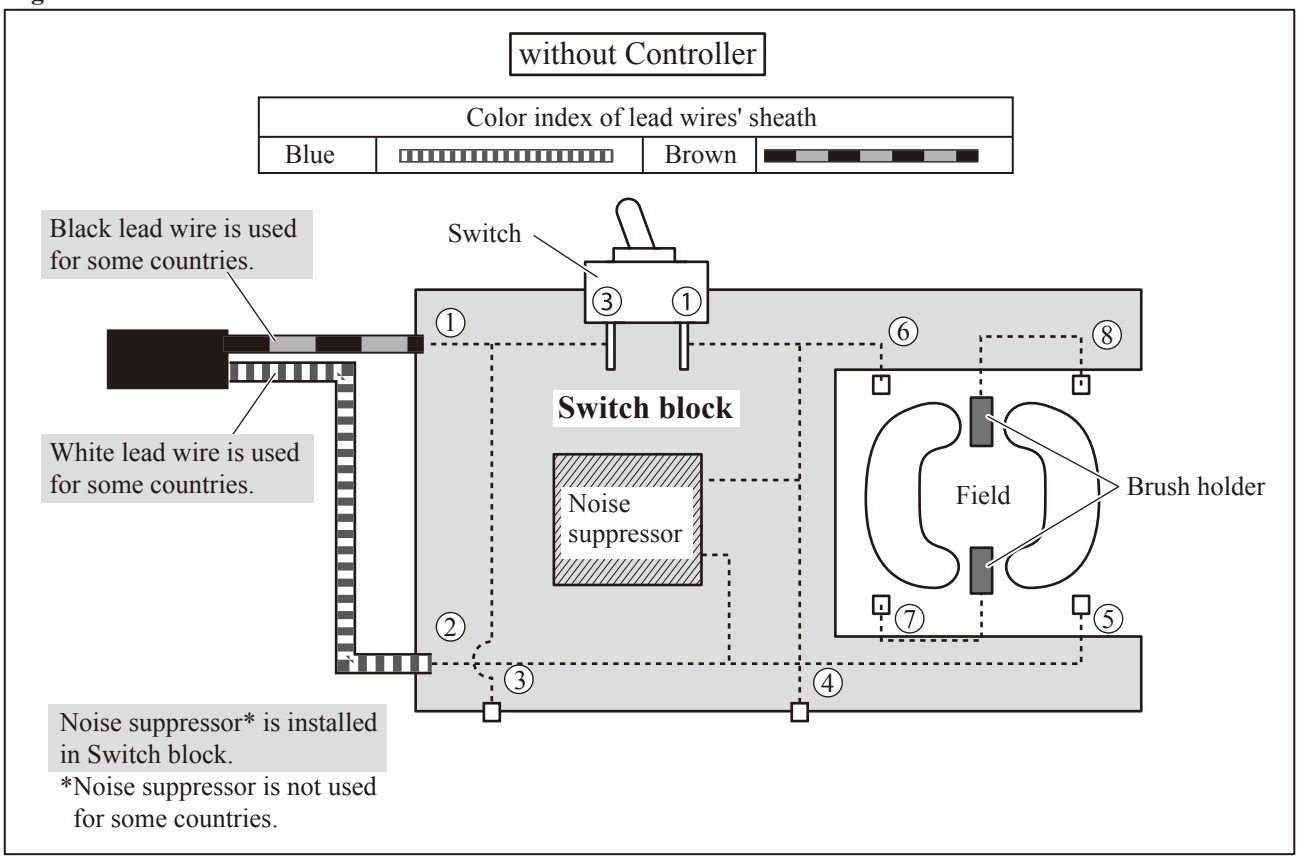
GA4041C, GA4043C, GA4541C, GA4543C, GA5041C, GA5043C

Fig. D-1A



GA4041, GA4541, GA5041, GA6041

Fig. D-1B



► Wiring diagram

Fig. D-2